DOCUMENT RESUME

ED 071 179 EA 004 769

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TITLE [Personnel Management and Computer Systems].
PUB DATE 25 Oct 72
NOTE 12p.; Speech given before the American School Business Officials Annual Conference (58th, Chicago, Illinois, October 21-26, 1972)

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Attendance; Communication (Thought Transfer); *Computer Oriented Programs; *Management Information Systems; Payroll Records; *Personnel Data; *Personnel Management; Salaries; *School Personnel; Time Sharing
IDENTIFIERS Computerized Methods; *Michigan; Oakland Schools Intermediate School District

ABSTRACT

The organization and use of computerized management information systems at the Oakland Schools intermediate school district in Michigan is utilized by 24 local school districts. The use of remote terminals provides access for the development of ongoing personnel programs. Emphasis is given to four major computer subsystems that directly involve the personnel function -- payroll, communications, salary management, and attendance. (Author)

ED 071179

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Presentation to be Delivered at

THE AMERICAN SCHOOL BUSINESS OFFICIALS CONFERENCE
Chicago, Illinois on October 25, 1972

by

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Any discussion of personnel management and computer systems has to be slightly confusing. First of all, what is personnel management? Secondly, what are computer systems?

I'm sure you've heard of the three blind men who attempted to describe an elephant. The one who had hold of the tail thought an elephant was like a rope. The one who had hold of the elephant's leg thought an elephant was like a big tree. The third thought that both of the others had lost their minds. He had hold of the trunk!

Well, within todays elephants--personnel management and computer systems--I'm here to describe a specific animal. Its name is RAMS and RAMS stands for Remote Access Management System. RAMS was conceived and is owned, copyrighted and operated by Oakland Schools. Oakland Schools is an intermediate school district which services twenty-eight local school districts, 250,000 students and 20,000 school employees in Oakland County, Michigan. Oakland County is immediately adjacent to Wayne County and the City of Detroit.

The school districts range in size from approximately 2000 students to over 20,000 students. In the north and northwest sections of the county there are rural districts. In the south there are suburbs. In between there are industrial cities like Pontiac, Michigan.

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RAMS - The Remote Access Management System - is used by twenty-four of these districts. In addition, the River Rouge School District located 40 miles to the south and the Saginaw City Schools, 70 miles to the north also use RAMS. Altogether twenty-six school districts are connected to the Oakland Schools RAMS system and Oakland Schools computer. Of these twenty-six districts, fourteen districts do their data processing business by using high speed remote terminals which are connected to the Oakland Schools central computer by telephone. In addition, two districts have computers which are connected to ours by telephone lines. The Pontiac Schools use an IBM 360/20 and The Birmingham Schools use an IBM 1130. The other ten districts on RAMS either share remote terminals or are 'carry in' batch customers. In addition, many districts have slow speed typewriter terminals and some of these are located in the district personnel and business offices.

RAMS is organized on the principle that there are a number of school managers. Each has information requirements which must be accommodated if each is to be able to do 'his thing', assume its direct responsibilities in the school business and maintain control over those things for which he is responsible. Five levels of management that I identify include the Superintendent and Board of Education, Central District Staff, Curriculum Staff, Building Principals and Teachers. The information requirements for each must be quickly accessible and comprehensive as well as current and up-to-date in order that quality as well as quantity statements can be made. Needless to say, computers can provide large file storage, fast record retrieval, rapid calculation ability, and tremendously fast output reporting. They provide accessibility to records if we can store the proper information.

If each level of management does 'its thing' and does it on the basis of current and comprehensive and generalizable information, we will be getting close to H. Thomas James definition of the term accountability. He says,

whatever is accountable is a cause of something happening, predictable, observable, and explainable. And, in addition, it can be contracted for and audited. It is interesting to note that we have been contracting with teachers for years. Maybe our problem involves auditing--and having records to audit that allow us to audit. Maybe we need an accounting system for education.

Now lets turn our attention to the specific animal called RAMS. RAMS requires either a third or fourth generation computer. Oakland Schools uses an IBM 365 Model 50 with storage capability of over two-thirds of a billion bytes of information. That is to say, over 650 million bytes of information are on line and immediately accessible to users by remote terminal.

Washtenaw Intermediate School District, our next door neighbor, has been using RAMS on an IBM 370/145 to service nine school districts and ninety thousand students since July 1, 1972.

But computers are the easiest things to talk about. Anyone can own a computer. The next question is what are you going to do with it? To make computers work and 'smoke' you need people. People to design programs, people to write programs, people to use programs. And these kinds of people require the commitment of large appropriations of monies across time if we are to harness and exploit the real potentials of the computer.

Oakland Schools' RAMS was designed and is being designed by people. Consultants in the fields of personnel, finance, student records, testing, statistics, etc. And these consultants work with specific programmers and program teams to design and implement computer programs in their fields of expertise.

But, in a large sense, RAMS is designed by specialists. Specialists who come from the twenty-eight local school districts in Oakland and from other surrounding school districts in Michigan. These local school district specialists in personnel, in finance, in student records, etc. know their thing and know what they expect from a computer system. These specialists worked and work with people like me

to define and design the essentials of things like automated personnel management systems. Systems that provide current, comprehensive and accessible personnel management information for each level of school management.

Lets digress for a moment and define RAMS accessibility. Information in RAMS must be normally accessible by remote terminal within one hour's time, and no RAMS program shall require more than a 24 hour waiting period by the user. The majority of our users are satisfied though by the first criteria. Information responses are made within one hour. My job and the job of other consultants on our staff includes the responsibility for directing the activities of the personnel-payroll program team to insure the integrity of these programs and the integrity of this accessibility strategy.

In personnel management we began by defining important, discrete personnel functions. These include the recruitment of staff, licensing of staff, assignment of staff, salary and benefit programs, evaluation, and termination. Personnel work can be described as an on-going process in which each function leads rather naturally to the next. Thus, after we recruit, license and assign a person we've generated all of the factors that will be involved in the salary and benefits program for that person.

In addition, these personnel functions apply equally to both non-instruction and instructional employees. Todays presentation emphasizes the instructional staff. But the RAMS personnel system uses the same record format for all employees, because all employees are involved in the personnel process. All we do is identify people by where and how they serve in the school district so that information can be reported for each discrete group of employees.

As we defined the necessary personnel information for this file we tied the personnel file to the finance and student files. This was done through account numbers and assignment codes. Eight account codes and eight assignment codes

can be used to identify people with school buildings, school programs, specific courses, and sections within courses. This provides the ability to program between files, to inter-relate and generalize from the combined data of finance, student records and personnel. We can now begin to relate specific classroom learning by students to the personnel requirements and the financial allocations that have been made to achieve that learning!

Information supporting specific personnel functions was organized on a single personnel data sheet that could be used to place new employees on file, or to make changes in an employee file. The key to the individual employee's file is the social security number. Data is arranged in traditional eighty column card format to support the file build and file maintenance needs of users. Information is arranged around titles such as personal, address, payroll data, hire/termination, preparation, license and assignment data.

I've always wanted to insert the work evaluation into the hire/termination title. In fact, all of the legal evaluation required by the State of Michigan is contained in this file. They require a teacher license, a yearly TB test, and a uearly evaluation by the administration. Beyond that its doubtful whether the person even has to be alive in order to teach.

After the personnel file data was defined, decisions had to be made as to where to start with the program effort. I would suggest that no architect begins the design of a house by drawing a roof line. If an architect did begin with a roof line, he'd probably end up with a house that sat on a very unstable foundation.

Our foundation in computerized personnel management is the sub-system of payroll and we think that's a stable foundation.

Payroll isn't a system. It is a sub-system. It occurs after people are hired and after their work preparation and experience has been evaluated. It

occurs after people are assigned to job functions. It occurs after personnel data has been accumulated for the data file and it is a sub-system of personnel management. It is one of four sub-systems in the RAMS personnel file of today.

A payroll sub-system requires flexibility if it is to serve various levels of management and a variety of school districts. It must allow for positive or exception type payrolls. It must provide for a host of voluntary deductions.

It must allow for the adjustment of salaries during the year and must automatically readjust and recompute federal, state and city withholding for taxes, social security and retirement when the salary is adjusted. It must record information by calendar year and by fiscal year.

It must provide checks for employees, a system for distributing checks, detailed payroll records for the employer, reports to the federal, state and city governments, and detailed reports to credit unions, annuity companies and unions on payroll deductions. Above all, a payroll sub-system must provide detailed, current, comprehensive and generalizable information to the various levels of management.

To insure flexibility, payroll records are stored on file for an entire quarter. Each payroll is stored in its own ledger area. Information on the prior quarter, previous quarters and year-to-date totals are always available. An individual's records can be reviewed by a couple of terminal instructions and the insertion of the individual's social security number.

The payroll file is a complete record. It is used for federal, state and city reporting. It contains the voluntary deductions taken and the account distributions that are charged for each employee. A quarterly report can be pulled four times per year and microfilmed. This satisfies the legal requirements that payroll data be kept for a fifty year period.

The Pontiac Credit Union says in its brochure that our payroll deduction system is perhaps the most flexible system available anywhere in the country, because of the variety of ways that employees can specify their deductions.

In the area of automatic banking employees also have flexibility. They may have the entire net pay deposited to free checking accounts. Or they may specify a dollar amount to be deposited. Or they may request a payroll check for a given amount, perhaps $100.00, with the remainder deposited to the checking account. Finally, they may chose not to participate in the program. These are examples of the payroll sub-system in RAMS and the flexibility that is required of this sub-system.

The second RAMS personnel sub-system is communications. It is called REQUEST. Request allows school managers to formulate their own questions of data in the file. In the REQUEST sub-system each item of information is identified and indexed with a table of contents number. For example, the table of contents number for the last name is 357. The first name is 356. If you want to list the employees in a district you'd use REQUEST and you'd use a typewriter terminal or high speed terminal.

After signing in you would give the Request Program instructions. The next command would be 'LIST 357' followed by an executed instruction. Normally you'll have your list in less than one hour.

If you wanted an alphabetic listing you'd say SORT 357 and LIST 357, or you'd SORT 357, the last name and 356, the first name and then LIST 356,357.

REQUEST commands include:

SORT - Sort items by alpha or numeric codes.

LIST - List the information for this item.

MATCH - Match to a specific code within an item. For instance, match only those people coded as contract employees.

COUNT - Count the number of people within each code: Contract employees, salaried employee, etc.

TOTAL - Total the number of people in all codes.

EQUAL TO - I want a list of people employed in 1965.

GREATER THAN - I want a listing of all people hired since 1965.

LESS THAN - I want a listing of people hired before 1965.

TITLE - The following titles are to be printed on the output report so it can be distributed.

The REQUEST sub-system is used in a number of ways. Districts use it to print district directories. Its used to list employee by building, by assignment, by age, sex, salary, degree, etc. It is used to answer the variety of management questions that require immediate, current, comprehensive and generalizable answers. Request is the second major sub-system in the RAMS personnel program.

Salary management is the third major sub-system in the RAMS personnel file. Salary management includes projecting and simulating the costs of salaries, negotiating changes in salaries, automatically adjusting payroll records, followed by automatic encumbrance of the salary accounts and the management of those accounts across time.

The salary management sub-system uses data from payrolls, account distributions, salary schedules and job assignments to forecast and manage the salary accounts of discrete groups of employees.

All employees-contract, salaried, hourly, and daily are identified with specific salary schedules and salary accounts. These schedules are used to projects costs for each employee group. Projections may be based on current salary schedules, new salary schedules, or percentage or dollar changes in the present salary schedule.

Projections show the total costs to the district, the dollar costs of each salary schedule, increases in dollar costs over previous schedules, the percentage of increase for the district, for each salary schedule, and for each step within each schedule.

In salary projections,
part time employees are prorated and projected as part time employees. Hourly employees are projected as hourly employees. The data is accurate because it is real. It is the same data used to generate the district payroll. And because it is real data the payroll records can be automatically adjusted once a final salary settlement is made.

If the salary settlement has come late, the projection and update program can be used to make retroactive payments. This happens in Michigan rather frequently.

After payroll records are updated the district financial accounts can be automatically encumbered by using the same computation programs that are used to project costs. And once the accounts are encumbered reports can be generated at any time in order to review the current status of those accounts. One district that encumbered its accounts last January reported that they 'found' over $50,000 of unexpended monies in their salary accounts.

Finally, the fourth sub-system in the RAMS personnel system is attendance. Attendance is a major problem for all personnel offices. It represents a sizable expenditure of money but it also represents a large amount of classroom time with tremendous implications for curriculum loss to students.

The attendance sub-system is also tied to the payroll sub-system. As attendance is reported for payroll it is stored for a full quarter of seventy working days and seven pay periods.

During the quarter, daily attendance reports can be generated by using touchtone card dialers and a daily attendance program. Or the attendance can be used with the payroll to generate biweekly attendance reports for each building location and for the district. Building reports show absences by reason for absence--sick leave, personnel leave, annual leave, etc., and by day of the week within the payroll period. The true cost of the absence is reported and where

leave banks are involved the banks are reconciled. Building reports also show the total amount of absenteeism for each type reason.

The district report shows the total absence for each reason by day within the payroll period with total district costs attached.

Quarterly reports are also generated for both the buildings and the district. These reports use the same format as the Biweekly Report but they report all the action for the entire quarter.

Note, that the district report is aimed at the Superintendent and Board of Education as well as Central District Staff. Building reports are aimed at central district staff-the personnel office-as well as building principals, supervisors or curriculum directors. These reports are detailed and individualized. They define specific employees. In short, these reports are aimed at a variety of levels of management. They are current, comprehensive and generalizable.

So we have an attendance sub-system that uses real data--payroll input--to capture, store and report to the management. In the process we audit the attendance input and the payroll output. And finally, by producing a quarterly attendance report for each employee we satisfy the legal requiremen to have attendance data available for seven years of past history. We satisfy this requirement by producing four reports, one each quarter. We can either store them or microfilm them.

There are other things that the RAMS personnel system does. For example, it produces state reports on school employees. But state reports aren't systems. They are applications. They are one shot programs and they are onerous. The State and the Feds-HEW-think in terms of one shot programs. ~~And they make changes in programs without notifying or consulting with people in advance.~~ Thats why their programs are onerous. Nevertheless, we do them.

Meanwhile our major efforts are directed at the development of new sub-systems. I expect these to include the development of an evaluation sub-system that will tie in the evaluation of personnel and the use of inservice programs with real curriculum learnings that require additional professional skills and expertise. Some people would define this as competency based evaluation and inservice. Another will be the development of unit cost programs that relate the real costs of specific classroom objectives to the financial and personnel allocations of the district. These types of sub-systems require that data from curriculum, student records, finance and personnel files all be inter-related. They require the cross reference ability inherent in the RAMS files.

There is, also, a need to define a historical file for personnel. The task will be to define those things that should be stored across time for personnel forecasting purposes.

There is a need to improve the management inservice programs on the use of RAMS so that the entire system can be fully exploited. This work is already underway.

There is a need to improve the file build and file maintenance procedures. The eighty column card format is too rigid. Optical scanning which is employed currently in student records is one way out. The use of the table of contents, TOC PROGRAM, is another possibility.

At the beginning of this session, I said I would discuss a very specific animal and that its name was RAMS. I've suggested that RAMS requires a heavy commitment to third and fourth generation computers and people, in order to tax the power and speed of the computer. I've suggested that districts can form consortiums to achieve this end. Such consortiums require a student base of about 100,000 students if they are to be cost efficient.

In personnel management, I've attempted to describe a system that interrelates data from several sub-systems to serve the various needs of the district personnel management. To date, those sub-systems include payroll, communications, salary management and attendance. And the work isn't over. There are other sub-systems that need to be built.

In closing, I don't want to leave you with the impression that RAMS operates on interchangeable parts. RAMS is specific and it is defined. Things work in RAMS because other things in RAMS work. When we build new sub-systems we don't invent the wheel. We only invent new parts to fit the existing system. So, I didn't bring a bevy of program outputs to distribute. They would be of little benefit to you because they wouldn't fit in your system. Instead, I've offered some suggestions as to how computer technology can be employed to develop management systems that solve management problems, and some of those management problems involve the personnel office.

In short, I've offered some thoughts about an elephant, some blind men, and the animal called RAMS.

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10-25-72